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Descripteur(s): *Français (Langue) *Langue seconde *Classe d'immersion
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Le but de la recherche est d'évaluer l'habileté linguistique en
anglais et en français d'élèves de onzième année ayant suivi le cours de
septième année et les programmes complémentaires ultérieurs en immersion
française. Les élèves de 1975-1976, inscrits en septième année dans des
classes d'immersion en 1971-1972, constituent la troisième cohorte du
programme d'enquête et font l'objet de ce rapport. Selon qu'ils ont
suivi davantage de cours en français après la septième année ou non, ils
constituent les groupes d'immersion no 1 et no 2. Des groupes de
contrôle francophone et anglophone ont été constitués.

Au total, 224 élèves de la région de Montréal ont participé à
l'enquête: 55 font parti du groupe d'immersion no 1 et 46 du groupe
d'immersion no 2 alors que 65 constituent le groupe anglais de contrôle
et 58 le groupe français. Les tests suivants ont été administrés au
cours de l'année: des sections du "California achievement test", les
Texts de rendement en français et en mathématiques de la CECM, des tests
de lecture, de compréhension auditive et de production orale en
français. On retrouve en annexe une étude basée sur les résultats aux
examens de fins d'études du secondaire de ces mêmes étudiants.

Les résultats en anglais et en mathématiques des groupes
d'immersion se situent au même niveau que ceux du groupe anglais de
contrôle; les groupes d'immersion ont toutefois systématiquement obtenu
des résultats supérieurs en ce qui concerne le français. Si les élèves
du groupe d'immersion no 2 ont obtenu, à la plupart des tests de
français, des résultats inférieurs à ceux du groupe français de
contrôle, il n'en va pas de même pour le groupe no 1: celui-ci a obtenu
des résultats comparables à ceux des francophones dans les domaines de
la compréhension de la chose lue, de la compréhension auditive, du
rendement en mathématiques, de l'aptitude à communiquer et de la
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Evaluation of the 1975-76 grade
II french immersion class - Cohort
3-

Fred Genesee
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EVALUATION OF THE 1975-76 GRADE 11

FRENCH IMMERSION CLASS

- COHORT 3 -

F. Genesee
B. Stefanovic

A report submitted by the Instructional Services Department
to

The Protestant School Board of Greater Montreal

October 1976

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RÉSUMÉ

Le but de ces travaux de recherche était d'évaluer l'habileté linguistique, en français et en anglais, des élèves de onzième (11ème) année ayant suivi le cours de 7ème année et les programmes complémentaires ultérieurs en immersion française. Les élèves d'immersion française, qu'ils se classent dans la moyenne, au-dessus ou en-dessous, ont subi des tests sur la langue anglaise destinés à mesurer leur habileté dans les domaines du vocabulaire, de l'orthographe et de la compréhension de la chose lue, ainsi que des tests destinés à mesurer leur habileté en langue française dans les domaines de la lecture, de l'utilisation de la langue, de la compréhension auditive et de l'expression orale.

Certains de ces élèves (groupe d'immersion no I) avaient suivi davantage de cours offerts après la 7ème année d'immersion que certains autres élèves appartenant au groupe d'immersion no II. Les résultats obtenus aux tests en anglais et en français par les élèves des groupes d'immersion ont été comparés à ceux obtenus par un groupe équivalent d'élèves de 11ème année n'ayant pas suivi les cours d'immersion et qui n'ont donc suivi que le seul cours de français annuel obligatoire (groupe anglais de contrôle). Les résultats obtenus par les élèves de ces trois groupes d'immersion et de contrôle ont alors été comparés à ceux obtenus par les élèves appartenant à un groupe francophone moyen fréquentant une école située sur l'île de Montréal (groupe français de contrôle).

On s'est aperçu que: (1) les résultats obtenus aux tests d'anglais par les élèves des groupes d'immersion se situaient au même niveau que ceux obtenus par le groupe anglais de contrôle; (2) les deux groupes d'immersion ont obtenu

Nous nous sommes également aperçus qu'il y avait relativement peu de différence entre les résultats obtenus aux tests en français par les élèves du groupe I et ceux du groupe II, bien que les premiers aient suivi plus de cours en post-immersion que les seconds. Nous discutons plus loin les résultats obtenus, à la lumière du quotient intellectuel des élèves et de leur succès aux cours d'immersion française, et en fonction de la nature des cours spéciaux de français offerts dans les classes terminales du secondaire.

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The students who participated in the current evaluation represent the third cohort or generation of students to graduate from the grade 7 immersion and follow-up program. Unlike the first two cohorts, this group includes students with a wide range of academic and intellectual abilities. Because of this, we were able for the first time to assess the performance of below average students in the secondary school French immersion program on tests of English and French language skills.

It was found in previous evaluations of grade 11 students graduating from the French immersion program that their native English language skills were not impaired relative to those of comparable students following the regular English language program. At the same time, the immersion students had acquired greater competence in the French language, as measured by tests of reading, speaking, listening and language usage (Genesee, Allister & Morin, 1974; Genesee & Chaplin, 1976). It was found in last year's evaluation of the grade 11 French immersion class that academic achievement was not impaired by instruction in French, (Genesee & Chaplin, 1976). More specifically, French immersion students scored higher on certain Departmental Leaving Examinations than did their anglophone peers, even when the former wrote the examination in French while the latter wrote it in English. These results were found for the grade 11 immersion group at large as well as for the particular experimental samples who participated in our evaluation. Furthermore, the grade 11 French immersion students

scored higher on the average than their francophone peers throughout the province of Quebec in certain French courses which were made available to post-grade 7 immersion students - indeed, a remarkable accomplishment.

It was also found in last year's evaluation that above average students tended to score higher than average students on most of the French language tests (Genesee & Chaplin, 1976). This finding is inconsistent with other research which has looked at the relationship between intelligence and second language learning (Genesee, 1976).

The purposes of the current research were to further study the role of intelligence in second language learning in the grade 7 immersion and follow-up program; to assess the proficiency of below average French immersion students in the English language; to assess the relative achievement levels in French of immersion students as a function of the number of special post-grade 7 French options they had taken; and to compare the French proficiency of the immersion students to that of francophone control students.

THE SAMPLE

The following four groups of students participated in the evaluation:

- 1) Anglophone students who had taken the grade 7 French immersion program in 1971-72 and had taken some of the special post-grade 7 French immersion courses; each of these students had taken 6 or more French courses in grades 8, 9 and 10 (Immersion I);
- 2) Anglophone students who had taken the grade 7 French immersion program in 1971-72 but who had taken fewer of the special post-grade 7 French immersion courses; these students had taken 5 or fewer French courses in grades 8, 9 and 10 (Immersion II);
- 3) Anglophone students in the Protestant School Board of Greater Montreal following the regular English language secondary school program with French-as-a-second language; virtually all of these students had taken only the required one French course per year in grades 8, 9 and 10 (English Control);

- 4) Francophone students in the Protestant School Board of Greater Montreal and the Commission des Ecoles Catholiques de Montréal who were following the regular French language secondary school programs within these two school boards (French Control).

Students in the three anglophone samples were selected from the following Protestant School Board of Greater Montreal schools: Dorval, Mount Royal, Riverdale and Sir Winston Churchill. Students in the French Control group were selected from Ecole Secondaire de Roberval, in the Protestant School Board of Greater Montreal, and from an all boys secondary school in the Commission des Ecoles Catholiques de Montréal; the de Roberval sample included both boys and girls. The Commission des Ecoles Catholiques de Montréal school was located in a predominantly middle class neighborhood in eastern Montreal. A summary of the sample sizes is presented in Table 1.

TABLE 1
SUMMARY OF SAMPLE SIZES

	Immersion <u>I</u>	Immersion <u>II</u>	English <u>Control</u>	French <u>Control</u>
Above Average	20	15	23	
Average	19	18	21	58
Below Average	16	13	21	

The anglophone students were categorized as above average, average or below average in I.Q. according to their performance on the Canadian Lorge-Thorndike Test of Intelligence (1967), which they had taken in grade 8, November 1973. The cut-off points were above average -- full scale I.Q. of 116 or above, average -- full scale I.Q. of 96-115, and below average -- full scale I.Q. of 95 and below. This was the first year that it was possible to include a "below average" group in the grade 11 evaluation. Previous grade 11 French immersion classes had been somewhat pre-selected, thereby excluding below average students.

No I.Q. information was available for the French Control samples. Nevertheless, we were assured by the principal and teachers of the students from the Commission des Ecoles Catholiques de Montréal that these students were "average". Their grade 9 Tests de Rendement results suggest that, in fact, these students were above average:

Test de Rendement en Français -	6.57;
Test de Rendement en Mathématiques -	7.13.

A stanine of 5 is average. The sample from Ecole Secondaire de Roberval was regarded by the teachers as an average group.

As a final note to this section, it should be pointed out that the unusually disrupted and stressful working conditions of last year meant that student participation throughout this research was

somewhat erratic despite our efforts to avoid this problem by scheduling testing much earlier in the school year than usual. Thus, the sample sizes outlined in Table 1 are maximum sizes; actual attendance at each test session varied. This problem will be discussed further in the Results section. Further, the sample sizes are generally small owing in part to the withdrawal of one Protestant School Board of Greater Montreal school from the project shortly after it had commenced.

TEST BATTERY

1) English Language Tests

All of the tests used in this part of the evaluation were taken from the California Achievement Tests (1970), Level 5 Form A. All of these tests are timed and administered to groups of students.

The Vocabulary subtest of the C.A.T. consists of 40 multiple-choice questions which test the students' ability to select from among four alternatives the one which means the same as a target word.

The Reading Comprehension subtest consists of five prose passages with multiple-choice questions and a "reference skills" section. There are 45 questions in total in this subtest.

The Spelling subtest consists of 32 multiple-choice questions in which the student must select from among four alternatives the one which is misspelled.

Raw scores from all three subtests were analyzed statistically.

In addition to these skills, we had originally intended to evaluate writing skills and mathematics skills in English. However, we decided to discontinue these tests to insure that a shortened test battery would be completed by all of the participating schools. This was necessary because of the disrupted work schedules in the schools last year.

2) French Language Tests

Reading

A modified version of the Test de Lecture "California" (1967), Cycle Inférieur, was administered. This test is designed for use with native French-speaking students. It consists of four sub-sections which assess vocabulary skills related to the following areas: mathematics, science, social sciences and general. It also consists of three comprehension sub-sections which assess comprehension of written directions and of prose passages. This was a timed group test. For the statistical analysis, the raw scores from the vocabulary

sub-sections were combined to form a single vocabulaire score with a maximum possible value of 90, and the raw scores from the comprehension sub-sections were combined to form a single compréhension score with a maximum possible value of 30.

Test de Rendement en Français (IX)

This test was designed and standardized by La Commission des Ecoles Catholiques de Montréal for use in its French schools during the academic year 1972-73. The highest level of the test, secondaire 3, was administered. It consists of 35 multiple-choice questions which assess the following types of language skills: spelling, vocabulary, parts of speech, and reading comprehension. Raw scores were converted to stanine equivalents for purposes of statistical analysis. The stanine norms were based on the secondary 3 population of the Commission des Ecoles Catholiques de Montréal as of November 1972 (See Appendix "A" for an explanation of a stanine scale).

Test de Rendement en Mathématiques (IX)

This test was also designed and standardized by La Commission des Ecoles Catholiques de Montréal for use in its French schools during the academic year 1972-73. It consists of 30 multiple-choice questions. As is the case with the Test de Rendement en

Français, the highest level of this test was administered, namely "secondaire 3". Raw scores were converted to stanine equivalents for purposes of statistical analysis. The norms were established in November of 1972.

Listening Comprehension

This test was created in the Curriculum Department of the Protestant School Board of Greater Montreal. It was based on a prose passage entitled "Le Village Qui Porte Bien Son Nom" from the book Le Canada sans Passeport (1967) by Eugène Cloutier. The passage was read twice, once in its entirety without interruption, and a second time, in shorter sections. Multiple-choice questions followed each section. Each question included four alternative answers with the final one always being "Aucune". Maximum possible score on the test was 15. The test was administered by means of a reel-to-reel tape recorder to insure standardization of administration.

Oral Production

Subsamples of students from each language, I.Q. and sex group participated in this part of the evaluation. A summary of the sample sizes is presented in Table 2.

TABLE 2
SAMPLE SIZES FOR ORAL PRODUCTION EVALUATION

		<u>Immersion</u> <u>I</u>	<u>Immersion</u> <u>II</u>	<u>English</u> <u>Control</u>	<u>French</u> <u>Control</u> *
Above	male	10	6	6	
Average	female	9	5	9	
Average	male	6	6	6	24
	female	5	8	4	
Below	male	3	2	6	
Average	female	5	8	5	

* Time constraints did not permit testing female francophone students.

Each student was interviewed individually by one of two native French-speaking interviewers. The interview was initiated by having the student describe a cartoon picture; following this, the interviewer engaged the student in a conversation about the cartoon or about matters of interest to the student. All interviews were tape recorded for later analysis. The interviewers were "blind" as to the I.Q. level and language program of each student.

Each student's speech sample was later rated independently by two native French-speaking evaluators, using a 5-point scale, along five dimensions: compréhension, prononciation, grammaire, vocabulaire and communication. The dimension of communication was intended to assess the students' fluency while speaking French. A rating of 5 on the scale indicates native-like or excellent skill on the dimension while a rating of 1 indicates very poor skill. The raters' assessments of each student were averaged to give one score per dimension per student. The raters were blind as to the I.Q. classification and the language program of each student. The speech samples were presented to the raters in a mixed random order.

RESULTS

A separate two-way analysis of variance was performed on the I.Q. scores. The main variables were school group (Immersion I, Immersion II, English Control) and I.Q. grouping (above average, average, below average). There were no statistically significant differences among the school groups. The average full scale I.Q. of each group was approximately 107. There was no school group by I.Q. grouping interaction, $F(2,176)=1.22$, $P<.05$, indicating that the composition of the average, below average and above average subgroups of each school group was equivalent. As can be seen from Table 3, there was on the average a 14-point difference between the below average students and the average students and a 16-point difference between the average and above average students.

English Language Tests

Three separate two-way analyses of variance (least squares solution) were carried out on the following C.A.T. scores: Vocabulary, Reading Comprehension and Spelling. The main variables were school group (Immersion I, Immersion II, English Control) and I.Q. (above average, average, below average). A summary of the average test scores along with the associated F, p and df values is presented in Table 3 (For a brief explanation of statistical terminology used throughout this report, see Appendix "B").

TABLE 3
SUMMARY OF ENGLISH LANGUAGE TEST RESULTS

A) BY SCHOOL GROUP

	IMMERSION I	IMMERSION II	ENGLISH CONTROL	F RATIO	df
I.Q.	107.60	107.19	106.74	.40	2,146
<u>California Achievement Tests</u>					
Vocabulary	32.88	31.79	29.38	7.75***	2,128
Comprehension	33.77	32.15	29.38	12.28***	2,128
Spelling	24.26	25.70	23.00	2.06	2,128

1. Means joined by a line are significantly different from one another according to the Newman-Keuls Test of multiple comparisons.

* $p < .05$; ** $p < .01$; *** $p < .001$

There were statistically significant differences between the school groups on the Vocabulary and Reading Comprehension subtests. In both cases, the English Control group scored significantly lower than the two Immersion groups, and there were no significant differences between the latter two groups. There were no significant School Groups by I.Q. group interactions for either of these tests, indicating that these findings cannot be attributed to an I.Q. imbalance among the three school groups. There was no significant difference among the groups on the Spelling subtest, nor was there a significant School Group X I.Q. group interaction.

As expected, there were significant differences among the I.Q. groups. In general, the below average students scored lowest, and the above average students scored highest. In summary, there was no evidence from these results that the immersion students were falling behind in their English language skills development. To the contrary, where there were differences between the Immersion and English Control students, they favored the Immersion students.

French Language Tests

Analysis 1F

Separate one-way analyses of variance were carried out on the following scores: Test de Lecture (vocabulaire, compréhension),

TABLE 3
SUMMARY OF ENGLISH LANGUAGE TEST RESULTS

B) BY I.Q.

	Above Average	Average	Below Average	F Ratio	df
I.Q.	122.82	106.60	92.11	507.60***	2,176
California Achievement Tests					
Vocabulary	35.98	32.33	25.75	57.67***	2,128
Comprehension	36.15	31.59	27.54	42.00***	2,128
Spelling	26.83	25.61	20.52	11.96***	2,128

1. Means joined by a line are significantly different from one another according to the Newman-Keuls Test of multiple comparisons.

* $p < .05$; ** $p < .01$; *** $p < .001$

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Test de Rendement (en Français, en Mathématiques), Test d'Ecoute and Oral Production (compréhension, prononciation, grammaire, vocabulaire, communication). The main variable was School Group (Immersion I, Immersion II, English Control, French Control). I.Q. could not be included as a variable in these analyses since there was no I.Q. information for the French Control students. These analyses allowed us to compare the performance of the anglophone groups to one another and to the francophone control group. A summary of these analyses is presented in Table 4 (A) along with the average test scores.

There were significant differences among the school groups on both parts of the Test de Lecture - vocabulaire and compréhension. On the vocabulaire section, Immersion I group ($\bar{X} = 69.19$) scored significantly higher than Immersion II group ($\bar{X} = 62.46$). While the Immersion I group scored higher than the English Control group ($\bar{X} = 58.17$), there was no difference between the Immersion II group and the English Control group. All three anglophone groups scored significantly lower than the French Control group ($\bar{X} = 77.88$). On the compréhension section, Immersion I ($\bar{X} = 19.03$) scored higher than Immersion II group ($\bar{X} = 16.89$). Again, while the Immersion I group scored significantly higher than the English Control group ($\bar{X} = 15.48$), the Immersion II group did not. Immersion I group scored at the same level as the French Control group ($\bar{X} = 19.44$), whereas the two other

TABLE 4
SUMMARY OF FRENCH LANGUAGE TEST RESULTS
A) ANALYSIS 1F

	DEMERSON I	DEMERSON II	ENGLISH CONTROL	FRENCH CONTROL	F RATIO	df
Test de Lecture: Vocabulaire	69.19	62.46	58.11	77.88	30.68	3,120
Compréhension	19.03	16.89	15.48	19.44	12.52	3,120
Test de Rendement en Français	5.39	4.49	3.05	6.57 ^{1.}	29.89	3,173
Test de Rendement en Mathématiques	6.71	6.15	5.69	7.13 ^{1.}	5.80	3,173
Test d'Ecoute	8.61	8.54	6.80	10.92	18.79	3,120
Oral Production:						
Compréhension	4.84	4.56	3.74	4.96 ^{1.}	21.43	3,129
Prononciation	3.97	3.67	3.17	4.38 ^{1.}	12.78	3,129
Grammaire	3.76	3.70	2.90	4.42 ^{1.}	12.52	3,129
Vocabulaire	3.88	3.40	2.86	4.52 ^{1.}	14.24	3,129
Communication	3.91	3.61	3.13	4.10 ^{1.}	9.37	3,129

*.p<.05; ** p<.01; *** p<.001

1. Includes C.E.C.M. French Control group only. Does not include de Roberval group.

anglophone groups scored significantly lower than the francophone group.

There were significant differences on the Test de Rendement en Français such that each group scored significantly differently from every other group. Thus, among the anglophone groups, the Immersion I group ($\bar{X} = 5.39$) scored higher than the Immersion II group ($\bar{X} = 4.49$), who scored higher than the English Control group ($\bar{X} = 3.05$). All three anglophone groups scored significantly lower than the French Control group ($\bar{X} = 6.57$). In terms of test norms, the two immersion groups scored in the "average" stanine range (4-5-6); the English Control group scored in the "below average" range (2-3); and the French Control group scored in the "above average" range (7-8).

There were also significant differences among the school groups on the Test de Rendement en Mathématiques. In this case, however, the two immersion groups did not score significantly differently from one another (Immersion I = 6.71; Immersion II = 6.15). Both scored significantly higher than the English Control group ($X = 5.69$). There were no significant differences between the immersion groups and the French Control group ($X = 7.13$). The English Control, however, scored significantly lower than the French Control group.

Despite significant differences among the anglophone groups on this test, they all scored in the upper portion of the "average" stanine range. Once again, the French Control group scored in the "above average" range.

There were significant differences among the school groups on the Test d'Ecoute. The English Control group ($\bar{X} = 6.80$) scored significantly lower than the two immersion groups (Immersion I = 8.61; Immersion II = 8.54), which scored at the same level as one another. All three anglophone groups scored significantly lower than the French Control group ($\bar{X} = 10.92$).

There were significant differences on all dimensions of the oral production evaluation. Because these results are quite detailed, they will be discussed in terms of over-all patterns rather than in terms of separate dimensions. A detailed summary of the findings is presented in Table 4 (A).

Comparison between the English Control group and the other three groups: the English Control students scored significantly lower than the other three groups on all but one of the five dimensions. The exception occurred on the communication dimension, where there was no difference between the English Control group and the Immersion II group.

Comparison between Immersion I and Immersion II: there were no significant differences between the Immersion I and II groups on any of the five dimensions.

Comparison between the two immersion groups and the French Control group: there were no significant differences between the two immersion groups and the French Control group on the compréhension and on the communication dimensions. Furthermore, the Immersion I group did not differ from the French Control group on the prononciation dimension whereas the Immersion II group was rated lower on this dimension. Finally, both immersion groups were rated lower than the French Control group on the grammaire and vocabulaire dimensions.

In summary, the English Control students scored consistently lower than the French Control students and the Immersion I students. The English Control students also tended to score lower than the Immersion II students; one exception to this was on the Test de Lecture, where there was no difference between the two groups on either subsection of the test. The Immersion II students tended to score at the same level as the Immersion I students on the measures of interpersonal communication skills in French, namely, listening and speaking. However, the Immersion II students scored lower than the Immersion I students on the tests of academic language skills, namely, the Test de Lecture and the Test de Rendement en Français. The Immersion I students generally scored lower than the French Control students, two notable exceptions being on the reading comprehension and listening comprehension tests.

Analyses 2F

Results from all of the French tests were re-analyzed with the French Control results excluded. This allowed us to include I.Q. level as a variable and, thereby, assess the relative performance in French of anglophone students at different I.Q. levels. The results of the analyses of variance will be discussed only as they pertain to differences amongst the I.Q. groupings. The results pertaining to school group are essentially the same as those from Analyses 1 F (See Table 4 (B) for a summary of these results).

For the sake of brevity, the discussion of these analyses will not focus on each test separately, but rather will look at the patterns of results for the I.Q. groups. The below average students scored significantly lower than the above average students on all of the French tests except the Test d'Ecoute, where there was no difference. The below average students also scored significantly lower than the average students on all of the tests with four exceptions: the vocabulaire section of the Test de Lecture, the Test d'Ecoute and the communication and vocabulaire dimensions of the oral production evaluation. In the case of the exceptions, there were no significant differences between the below average and the average students.

The above average students scored significantly higher than the average students on both sections of the Test de Lecture (vocabulaire, compréhension), on both versions of the Test de Rendement (en Français, en Mathématiques) and on the grammaire dimension of the oral production evaluation. There were no significant differences between the above

TABLE 4
SUMMARY OF FRENCH LANGUAGE TEST RESULTS
B) ANALYSIS 2F

	Above Average	Average	Below Average	F Ratio	df
Test de Lecture:					
Vocabulaire	68.03	62.09	58.11	10.02***	2,90
Compréhension	18.64	16.84	15.20	10.63***	2,90
Test de Rendement en Français	5.10	4.24	3.45	11.04***	2,145
Test de Rendement en Mathématiques	6.88	6.20	5.40	9.18***	2,145
Test d'Ecoute	8.32	8.27	7.04	2.81 ^{2.}	2,90
Oral Production:					
Compréhension	4.69	4.43	3.92	9.12***	2,100
Prononciation	3.85	3.76	3.11	7.44***	2,100
Grammaire	3.96	3.36	2.83	12.59***	2,100
Vocabulaire	3.77	3.36	2.90	6.64**	2,100
Communication	3.80	3.51	3.23	3.47*	2,100

* $p < .05$; ** $p < .01$; *** $p < .001$

2. $p = .07$

average and average students on the Test d'Ecoute or on the remaining four dimensions of the oral production evaluation. There were no significant School Group X I.Q. group interactions in any of these test results indicating that the main effects, i.e., the school group effects and the I.Q. effects, were independent of one another. For example, the finding that the above average students scored higher than the below average students on the Test de Lecture could not be attributed to an unequal distribution of immersion and non-immersion students in the two groups.

In summary, the below average students scored lower than the above average students on virtually all of the tests. Below average students scored lower than the average students on some of the tests, while there were no group differences on the others. This was also true when the average and above average students are compared.

SUMMARY AND DISCUSSION

This year's test results indicate that

- (1) the French immersion students scored at the same level as or higher than the English Control students on the English language tests;
- (2) below average students in the French immersion program scored at the same level as their below average counterparts in the regular English program, indicating that they were not differentially handicapped in English language skills development;
- (3) at the same time, all groups of students in the French immersion program (above average, average and below average) scored consistently higher than English Control students on tests of French language skills (including reading, speaking, listening and language usage);
- (4) the Immersion II students, in general, scored lower than the French Control students on the French tests;
- (5) the Immersion I students scored at the same level as the French Control students on the following measures:

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reading comprehension, individual listening comprehension, pronunciation, communication and Rendement en Mathématiques; otherwise, the Immersion students scored lower than the French Controls;

- (6) Immersion I students scored higher than Immersion II students on the Test de Lecture and on the Test de Rendement en Français; otherwise, these two groups scored at the same level as one another;
- (7) below average students in the French Immersion and in the FSL program scored consistently lower than the above average students and generally lower than the average students on the French language tests.

A number of these findings warrant further discussion. It was found in the evaluation of the first grade II French immersion class (Genesee, Allister & Morin, 1974) that there was no appreciable difference between immersion students who continued to take extra post-grade 7 French courses even in secondary V and those immersion students who did not. The current findings are consistent with this when speaking and listening comprehension skills are considered. On the test of reading and rendement in French, however, the students who took more of the extra French courses were found to score higher than the immersion students who took fewer of these courses. This differential

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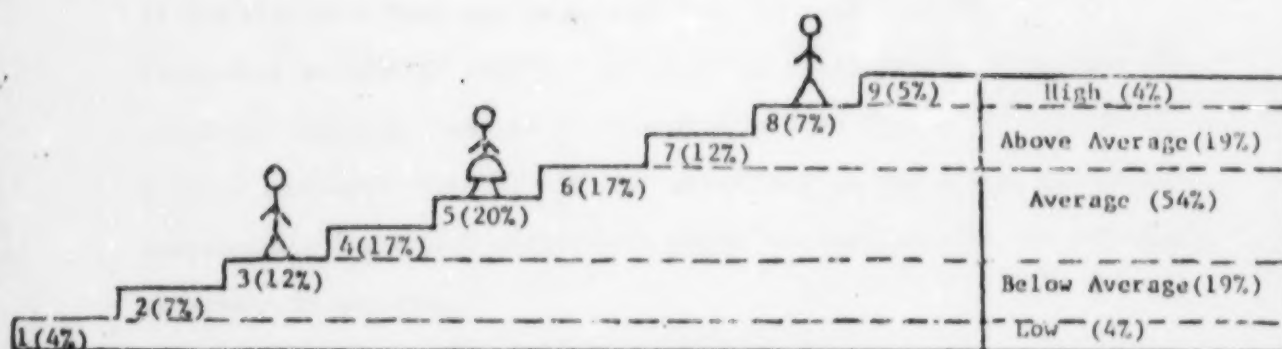
advantage may reflect the more literary orientation of certain of the French courses in the senior grades. Continued development of oral and aural French skills at higher grade levels may depend increasingly on extra-curricular use of the language.

It has been found in a number of other evaluations at lower grade levels that acquisition of speaking and listening comprehension skills in French is not necessarily dependent on I.Q. level, (see Genesee, Morin & Allister, 1974, for grade 4; Genesee & Chaplin, 1975, for grade 5; Genesee & Stefanovic, 1976, for grade 6; Genesee, Morin & Allister, 1974, for grade 7). However, in the current evaluation, as well as in the previous grade 11 evaluation (Genesee & Chaplin, 1975), these findings have not been completely confirmed. In other words, it has been found that among grade 11 students there is a general tendency for the above average students to acquire superior proficiency in French, both academic language skills and interpersonal communication skills, when compared to average and below average students. The exact reason for this discrepancy is not clear at this time. It may be that the increasingly literary or academic orientation of the French courses offered in the senior grades affords an advantage to the above average students in all aspects of second language acquisition. However, this suggestion is at best speculation. In any event, it may be that the processes which characterize second language learning are different at different age levels, that intellectual factors are more potent among older second language learners than among younger ones.

APPENDIX "A"

The stanine scale is a simple nine point scale of standard scores. (The word stanine was derived for STandard NINE-point scale).

In this scale, raw scores are converted to scores which range from 1 (low) to 9 (high) with a mean of 5 and a standard deviation of 2.



APPENDIX "B"

Analysis of variance is a mathematical procedure for testing the statistical reliability of the differences among a series of mean scores. Stated simply, an analysis of variance estimates how much of the variability in the test scores is due to the systematic effects of the experimental treatment which in the current report is the school language program and how much of the variability is due to non-systematic influences such as individual differences among the children. The first estimate is generally called the "treatment variance" and the second estimate is called the "error variance". The ratio of the treatment variance to the error variance is called an F ratio. If the treatment variance is larger than the error variance the F ratio will be greater than 1. If the error variance is larger than the treatment variance then the F ratio will be less than 1. A very small F ratio indicates that most of the variability in the scores is due to unsystematic individual differences which are unrelated to the particular treatment in question.

To decide whether a particular F ratio is "significant" and, in other words, whether there is a significant difference between the average scores, one must determine the probability (or p value) of obtaining an F ratio of a certain magnitude. The p value can be ascertained easily with the assistance of standard mathematical tables, that have already been set up, and a knowledge of the "degrees of freedom" for your

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particular experiment. There is a degrees of freedom value associated with the numerator, or treatment variance, of the F ratio, and a degrees of freedom value associated with the denominator, or error variance, of the F ratio. There is no brief way of discussing the calculation or significance of degrees of freedom so that for the sake of this explanation they will be not discussed further.

According to tradition, the probability (or p value) associated with a particular F ratio must be 5 out of 100 (i.e., .05) or less ($p < .05$) before one calls the difference between the averages "significant". If the p value is greater than 5 out of 100 (i.e., $> .05$), then one calls the difference between the averages "non insignificant". What one is saying when one says " $p < .05$ " is that the probability of getting a particular F ratio, and, therefore, a particular difference between average scores is less than 5 in 100 by chance alone. One then goes on to assume that since the probability is relatively low, that the difference between the mean scores is probably due to the treatment and not to chance or uncontrolled influences. In other words, the treatment (or language of schooling in this report) has had a significant influence on the students' performance on the language tests. Of course, the converse rationale holds for the reverse situation where $p > .05$.

This explanation of analysis of variance, F ratios, p values and significance is of necessity brief, but hopefully will facilitate

the reader's understanding of the article. More thorough and mathematical descriptions of these concepts can be found in Statistical Analysis for Psychology and Education, 3rd ed. G.A.Ferguson, McGraw-Hill, 1971, and Statistical Principles in Experimental Design, 2nd ed. B.J.Winer, McGraw-Hill, 1971.

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ADDENDUM TO
EVALUATION OF THE 1975-76 GRADE 11
FRENCH IMMERSION CLASS

SUBMITTED TO
THE PROTESTANT SCHOOL BOARD OF GREATER MONTREAL
ON APRIL 1976
FRED GENESEE
INSTRUCTIONAL SERVICES

The purpose of this addendum is to summarize the Department of Education Leaving Examination results of the 1975-76 Immersion graduating class. An assessment of the English language, French language and mathematics achievement of selected samples of these students was carried out previously and has been reported separately (c.f. Genesee & Stefanovic, 1976). It will be recalled that these students represent the third cohort of students to participate in and graduate from the Grade 7 Immersion and Follow-Up program. The results of that assessment indicated the following:

- (1) the French Immersion students scored at the same level as or higher than the English Control students on English language tests, including vocabulary, reading comprehension and spelling;
- (2) below average students in the French Immersion program scored at the same level as their below average counterparts in the regular English program, indicating that they were not differentially handicapped in English language skills development;
- (3) at the same time, all groups of students in the French Immersion program (above average, average and below average) scored consistently higher than English Control students on tests of French language skills, including reading, speaking, listening and language usage;

- (4) whereas Immersion students who had taken relatively more of the special post-grade 7 French course options(7 plus) scored at the same level as French Control students on some of the French language tests, Immersion students who had taken fewer of these course options (5 or fewer) scored consistently lower than French Control students on all French tests;
- (5) Immersion students who had taken more French course options scored higher than the other Immersion students on some of the French language tests, most notably the Test of Lecture and the Test de Rendement en Français.

It was not possible to include an analysis of these students' Departmental Leaving Examination results in that report since they were not available at the time.

The Departmental Leaving Examination results of the 1974-75 graduating Immersion class had been analyzed and reported previously(c.f. Genesee & Chaplin 1976). The results of these analyses revealed the following:

- (1) anglophone students in schools of the PSBGM who enrolled in special post-immersion French courses, on the average, scored higher on departmental exams in French than their francophone peers in the rest of Quebec taking the same courses; these examinations included Français (langue maternelle), histoire, géographie, mathématique, dactylo and arts plastiques; and
- (2) anglophone students enrolled in the special post-immersion French courses, on the average, scored higher on departmental exams in French than their anglophone peers also in schools of the PSBGM taking the corresponding English courses and exams.

It was pointed out in that report that interpretation of these results be made cautiously owing to differences in the characteristics of students

who comprise these populations. A similar caution is extended to the current results. In particular, it must be borne in mind when interpreting the following results that the students comprising the school samples under consideration are probably more advantaged on the average than the students who comprise the provincial student populations, French and English. Furthermore, there is undoubtedly less variation in socio-economic and academic ability levels among the students from the school samples under consideration than among the populations of students comprising the provincial groups.

RESULTS

Results for the following examinations were included:

(a) in French		(b) in English	
Dactylo III - IV	(450-412)	Typewriting III - IV	(950-412)
Géographie	(470-412)	Geography 412	(970-412)
Histoire 412	(475-412)	History 412	(975-412)
Histoire 512	(475-512)	History 512	(975-512)
Mathématiques 422	(281-422)	Mathematics 422	(781-422)
Mathématiques 522	(281-522)	Mathematics 522	(781-422)

All of the French examinations were intended for native French-speaking students in Québec. The English examinations were analogous to the corresponding French ones. The French and English courses underlying these exams are intended to be almost identical.

A summary of the results for each exam is presented in Table 1. For each examination under consideration the following information has been included: the names of schools in the PSBGM which offered the course, the number of students who wrote the examination, the average grade score of the students who wrote the examination, and the pass and failure rates of those who wrote it. The last three pieces of information are included for the English schools in the PSBGM where the course was offered, and for the province (PROV) as a whole. The provincial results represent the average

performance of all students in the province of Québec who wrote the exam in 1976; the vast majority of these students were French-speaking. The board results simply represent the average performance of all students in the schools listed who wrote the exam; all of these students were English-speaking.

Three types of comparisons can be derived from these data:

(1) looking only at the exams in French -- compare the Board results to the provincial results; this gives us an indication of how anglophone Immersion students in the PSBGM scored relative to francophone students throughout the province on the same exams;*(2) looking at the exams which are available in English and French -- compare the Board results on the French exams to the Board results on the English exams -- this gives us an indication of how anglophone students who took the special French courses scored relative to other anglophone students in the PSBGM who took the corresponding English courses and the same basic exams; and (3) looking only at the results of the English exams compare the Board results with the provincial results; this gives us an indication of how anglophone students in the PSBGM scored relative to other anglophone students throughout the province on these select few exams.

(1) French-French Comparison

On every comparison, except that involving Mathématiques 522, the board results were numerically higher than the provincial results. Thus, grade 7 Immersion students who took these special post-Immersion courses scored higher on the corresponding Departmental examinations than franco-

* The following examinations were actually set by each school board: Français 580-552, Français 580-542, Mathématique 281-422, and Dactylo III-IV. Undoubtedly there was considerable variation in the way these exams were set and how marks were assigned. Thus, it is not really accurate to say that the Board and provincial scores on these exams reflect performance on the same exam. Since the course guidelines, however, were the same, one could consider that the grades for these courses reflect acquisition of essentially the same material.

phone students throughout the province. This pattern of results is reinforced⁵ by the pass/fail data which indicate that in every case the pass rate of the Immersion students in the PSBGM was higher than that of the francophone students. These findings are highly consistent with those found in our previous analysis (Genesee & Chaplin, 1976). Again, it must be borne in mind that the students comprising the Board population are probably advantaged relative to students comprising the provincial population. Nevertheless, these results indicate that the Immersion students were able to perform comparatively well despite the fact that they were being instructed and evaluated in a second language.

(2) French-English Comparison

The purpose of this comparison is to assess the performance of the Immersion students in these special post-immersion courses relative to that of their anglophone peers, also in the PSBGM, who took the corresponding English courses and exams. Again, it must be kept in mind that as a group the Immersion students are probably academically stronger than the non-Immersion students and that there is probably less variation in academic level among the Immersion students than among the non-Immersion students.

In every comparison, the students who wrote the French version of the exam scored numerically higher than the students who wrote the English version. The magnitude of the difference varies somewhat from a low of less than 2 points on Geography 412 to a high of 13 points on Mathematics 422. Inspection of the pass/fail rates for the Board indicates that the pass rate was higher for Immersion students writing the French exams than for the non-Immersion students writing the English exams; these results are consistent with the grade score results.

Thus, there is no evidence from these results that the Immersion students are falling behind their non-Immersion peers in the learning of content material even when that learning takes place in French. These results are consistent with our previous findings.

(3) English-English Comparison

In this series of comparisons, the Board results on the English exams were compared to the provincial results on the same exams. The purpose of these comparisons is to assess the achievement levels of anglophone students in the PSBGM to that of other anglophone students in the province as a whole.

The Board averages and pass rates were higher on two of the exams under consideration -- History 512 and Mathematics 522; they were lower on two of the exams -- Mathematics 422 and Typewriting III-IV, both of which were set locally, and there was no difference on the remaining two -- Geography 412 and History 412. These exams represent a very narrow selection of the Secondary V Leaving Examinations and, therefore, cannot be taken as representative of the entire PSBGM curriculum.

Thus, these results indicate that anglophone students in the PSBGM scored higher than, lower than or as well as other anglophone students in Quebec as a whole depending upon the particular examination under consideration.

French Language Test Results

A final set of comparisons was made including Board and province results on certain French language examinations; see Table 2. These included:

Français 422 - - Expression orale

Français 422 - - Compréhension de texte

Français 542 - - Poésie et roman

Français 552 - - Théâtre et essai

These examinations and their corresponding courses are designed for native French-speaking students.

The Board averages and pass rates were higher than the provincial results in the case of three of these examinations -- théâtre et essai, expression orale and compréhension de texte, and lower on the remaining one -- poésie et roman. In the previous analysis, the school results were higher than the provincial results on all these exams, including poésie et roman. These results, therefore, are largely consistent with the earlier ones.

SUMMARY

The current results indicate:

- (1) Immersion students who have taken some of the special post-Immersion French options scored as well as francophone students throughout Quebec on the corresponding exams which were taken in French. This was true for language-related exams and for non-language related exams, such as mathematics and geography.
- (2) At the same time, the Immersion students scored as well on the French exams as their anglophone counterparts in the regular English program on the English exams despite the fact that the Immersion students were instructed and evaluated in a second language.

These findings corroborate those from a similar analysis carried out at the end of 1975.

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TABLE I

(A) Summary of French Departmental Leaving Examination Results

	<u>No. Writing</u>	<u>% Pass</u>	<u>% Fail</u>	<u>Average</u>
<u>Dactylo III-IV</u>				
Riverdale	Brd 106	93.17	6.83	73.72
Winston Churchill	Prov 30,101	89.36	10.63	69.54
LaSalle				
<u>Géographie 412</u>				
Mount Royal	Brd 257	86.99	13.01	62.20
Northmount	Prov 71,081	73.88	26.11	57.58
Riverdale				
Winston Churchill				
<u>Histoire 412</u>				
Malcolm Campbell	Brd 490	87.41	12.59	61.72
Montreal West	Prov 66,365	75.25	24.74	56.35
Mount Royal				
Northmount				
Riverdale				
Rosemont				
Winston Churchill				
Wagar				
Westhill				
<u>Histoire 512</u>				
Westhill	Brd 39	97.43	2.56	73.17
	Prov 13,178	82.72	17.27	61.48
<u>Mathématiques 422</u>				
Riverdale	Brd 126	92.76	17.24	70.78
Verdun	Prov 42,090	74.78	25.21	58.40
<u>Mathématiques 522</u>				
Verdun	Brd 18	77.77	22.22	55.55
	Prov 28,220	75.72	24.27	58.11

TABLE I(Cont'd)

(B) Summary of English Departmental Leaving Examination Results

<u>Typewriting III-IV</u>	<u>No. Writing</u>	<u>% Pass</u>	<u>% Fail</u>	<u>Average</u>
Brd	1,945	73.36	26.63	58.10
Prov	7,651	82.18	17.81	64.07
<u>Geography 412</u>				
Brd	645	80.77	19.22	60.76
Prov	7,185	89.96	12.03	61.82
<u>History 412</u>				
Brd	3,550	76.19	23.80	58.58
Prov	17,761	77.54	22.45	58.24
<u>History 512</u>				
Brd	1,085	82.48	17.51	65.18
Prov	4,997	80.94	19.05	62.92
<u>Mathematics 422</u>				
Brd	3,460	70.52	29.47	57.30
Prov	13,795	76.84	23.15	60.03
<u>Mathematics 522</u>				
Brd	2,082	81.74	18.25	64.20
Prov	7,836	75.15	24.84	59.99

TABLE 2

Summary of French Language Examination Results

		<u>No. Writing</u>	<u>Pass</u>	<u>Fail</u>	<u>Average</u>
<u>Français - Poésie et roman</u>					
Montreal West	Brd	55	89.40	10.60	64.71
Winston Churchill	Prov	641	89.23	10.76	67.70
<u>Français - Théâtre et essai</u>					
Mount Royal	Brd	182	96.94	3.06	74.44
Westmount	Prov	1,675	94.74	5.25	70.81
Alternative H.S.					
<u>Français - Expression orale</u>					
Mount Royal	Brd	187	99.27	.73	76.36
Riverdale	Prov	53,645	92.15	7.84	64.81
Wagar					
Westhill					
<u>Français - Compréhension de texte</u>					
Mount Royal	Brd	186	97.55	2.45	70.41
Riverdale	Prov	52,338	89.41	10.58	63.76
Wagar					
Westhill					